



# BUSAN<sup>®</sup> 93

Available in the U.S.A. and other countries

## COMPOSITION

Active ingredient	28.0 percent
Micro-encapsulated active ingredient	20.0 percent
Inert ingredients	52.0 percent

## APPLICATIONS

Busan 93 is a broad spectrum fungicide which is effective against a wide range of plant and fungal diseases. It is also effective against insects and mites. It is used for the control of plant and fungal diseases in the following crops: cotton, corn, soybeans, sorghum, sugarcane, rice, wheat, and other cereals. It is also used for the control of plant and fungal diseases in the following crops: alfalfa, clover, lucerne, and other legumes. It is also used for the control of plant and fungal diseases in the following crops: grapes, citrus fruits, and other fruits. It is also used for the control of plant and fungal diseases in the following crops: ornamental plants, lawns, and golf courses. It is also used for the control of plant and fungal diseases in the following crops: rubber trees, coffee, and other perennial crops. It is also used for the control of plant and fungal diseases in the following crops: sugarcane, rice, and other crops. It is also used for the control of plant and fungal diseases in the following crops: cotton, corn, soybeans, sorghum, rice, wheat, and other cereals. It is also used for the control of plant and fungal diseases in the following crops: alfalfa, clover, lucerne, and other legumes. It is also used for the control of plant and fungal diseases in the following crops: grapes, citrus fruits, and other fruits. It is also used for the control of plant and fungal diseases in the following crops: ornamental plants, lawns, and golf courses. It is also used for the control of plant and fungal diseases in the following crops: rubber trees, coffee, and other perennial crops.

## DANGER

KEEP OUT OF THE REACH OF CHILDREN.

Harmful if swallowed. Workers handling this product should wear rubber gloves and goggles and should avoid contact of the product with clothing or skin. If the product gets into the eyes, it causes irritation. Wash the eyes immediately with plenty of water.

**FIRST AID:** If swallowed, give plenty of water immediately. Give patient doses of powdered carbonate immediately. If inhaled, give plenty of water immediately. If on skin, wash with plenty of water. If on clothing, wash with plenty of water. If on skin, wash with plenty of water. If on clothing, wash with plenty of water. If on skin, wash with plenty of water. If on clothing, wash with plenty of water.

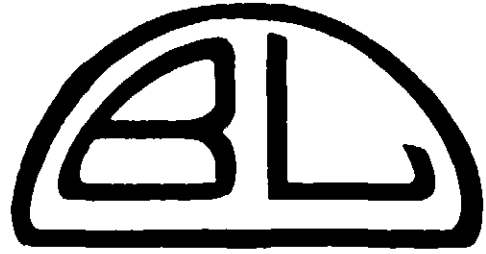
This product is very toxic to fish and other aquatic life. Do not discharge when it will drain into water. Do not discharge into water. Do not discharge into water. Do not discharge into water.

MANUFACTURED BY

### BUCKMAN LABORATORIES, INC.

MEMPHIS, TENN. 38108, U.S.A.

EPA REG. NO. 118-1



# PRODUCT DATA

September 18, 1977

BUSAN 93

## NEW COMBINATION MICROBICIDE FOR INDUSTRY

Busan 93 is a new industrial microbicide that combines the broad spectrum activity of the widely used and time tested organobromine compound, 2-bromo-4-hydroxyacetophenone with the outstanding fungicidal properties of 2-thiocyanomethylthio benzothiazole. The latter compound has proven itself as an effective, non-toxic replacement for many of the fungicides in a number of agricultural and industrial applications. Busan 93 therefore provides a wider range of activity and more efficient control of bacterial and fungal slime in pulp and paper mills.

Busan 93 is composed of materials that have been allowed for use in the manufacture of paper and paperboard under U.S. Food and Drug Administration Regulation 171.2505.

## PRODUCT CHARACTERISTICS

Busan 93 is a liquid packed in 230 kg (505 lb.) net weight plastic drums with bungs. Penton, Teflon, polyethylene, polypropylene, enameled iron, and Teflon stainless steel are all satisfactory for storing and handling Busan 93. The complete list of the physical properties of Busan 93 are as follows:

- Active ingredients: 2-bromo-4-hydroxyacetophenone 25 percent
- 2-Bromo-4-hydroxyacetophenone 25 percent
- 2-Thiocyanomethylthio benzothiazole 5 percent
- Inert ingredients 70 percent
- Density at 25°C (77°F) 1.25 g/cm<sup>3</sup> (79.1 lb./cu. ft.)
- Approximate weight per U.S. gallon 10.4 lb.
- Approximate volume per kilogram 0.79 liter
- Approximate volume per pound 0.44 gallon
- Flashpoint by Taghlab's open cup method 100°C (212°F)
- pH of 100 parts per million in distilled water 7.0

Busan 93 is moderately toxic by ingestion and slightly toxic by contact. The undiluted product is severely irritating to the eyes and skin. Wash thoroughly with copious amounts of water if you get it on your face and get it out of your eyes immediately.

The product is not acutely toxic to birds, fish, or aquatic life. Do not use in areas where it may be consumed by public water. Do not use in areas where it may be applied to crops or other plants. Do not use in areas where it may be applied to waste. Apply this product to industrial waste.

## Buckman Laboratories, Inc.

MEMPHIS, TENNESSEE 38117

MEMPHIS, TENNESSEE 38117

Buckman Laboratories, Inc. Buckman Laboratories, Inc. Buckman Laboratories, Inc. Buckman Laboratories, Inc.

Buckman Laboratories, Inc. Buckman Laboratories, Inc. Buckman Laboratories, Inc. Buckman Laboratories, Inc.

Buckman Laboratories, Inc. Buckman Laboratories, Inc.

## APPLICATIONS

Busan 93 can be dispersed directly from shipping containers by use of chemical metering pumps or spray nozzles, or manually. It should be added to the system at points of vigorous agitation, so that it will be distributed uniformly to all parts of the system where it is to be used. (See Figure 1 for flow diagram.)

### PULP AND PAPER MILLS

#### Slime Control

In continuous flow pulp and paper mill systems, Busan 93 is used at concentrations of 0.5 to 1.8 parts per million, based on the total flow of fiber and water at maximum dilution, for treatment periods of 3 to 6 hours. The treatment with Busan 93 is repeated once each 8, each 12, or each 24 hours. The concentration of Busan 93 and the frequency of treatment are adjusted according to the rate of slime accretion.

#### Fresh Water Treatment

Busan 93 can be used to supplement or replace chlorine in the treatment of process fresh water. In treating fresh water, Busan 93 is usually employed at concentrations of 1 to 4 parts per million for treatment periods of 3 hours out of each 8 hours. However, the frequency can be increased or decreased to provide optimum control of microorganisms. Busan 93 should not be added to water used for drinking or bathing.

#### Preservation of Slush Pulp

Pulp stored at either high or low consistency may require treatment with a microbicide to prevent it from spoiling as the result of the growth of microorganisms. Slush pulp that may be held in storage for more than 8 hours but not more than 1 week should be treated with 0.1 to 0.3 kg. of Busan 93 per metric ton (0.2 to 0.6 lb. per short ton) of moisture free pulp. The Busan 93 should be added in a manner that will insure uniform distribution throughout the mass of pulp moving to storage.

#### Secondary Fiber Treatment

When microbially contaminated pulp or secondary fiber (waste paper) is added to the system, it should receive supplementary treatment with Busan 93. The addition to each beater or pulper of 0.1 kg. of Busan 93 per metric ton (0.2 lb. per short ton) of moisture free fiber will aid in keeping the system free of slime.

#### Broke Treatment

Broke may also require supplementary treatment with Busan 93 to provide the best slime control. For uncoated broke, the addition of 0.1 to 0.2 kg. of Busan 93 per metric ton (0.2 to 0.4 lb. per short ton) will usually be adequate, but coated broke may require as much as 0.3 kg. of Busan 93 per metric ton (0.6 lb. per short ton).

#### Preservation of Papermaking Chemicals

Busan 93 can also be used to combat growth of bacteria and fungi that cause the biological degradation of papermaking chemicals. The required amount of Busan 93 to be added to such a solution depends on uniform distribution throughout the solution.

be protected. If necessary, Busan 93 can be diluted with an equal volume or less of water or 50% to 75% by volume of alcohol immediately prior to use to facilitate its dispersion in the water. The following table shows the amount of Busan 93 recommended for use on various materials, based on the total wet weight of slurry, emulsion, or solution to be treated.

Substrate	Parts per million of Busan 93
Vinyl solutions	50 to 100
Animal glue solutions	75 to 150
Clay slurries, phosphate dispersed	50 to 100
Coating formulations, protein binders	150 to 400
Coating formulations, starch binders	100 to 200
Starch slurries and solutions	50 to 150

#### COORDINATED PROGRAMS

The maximum effectiveness of any microbicide, including Busan 93 will be obtained when the product is used as part of an overall Coordinated Program designed to control fungus and to increase operating efficiency in the pulp and paper mill systems. The representatives and distributors of Buckman Laboratories, Inc., can assist in the development of a Coordinated Program utilizing the Buckman team of compatible and complementary products.

*The data and claims in this bulletin are based on tests believed to be reliable. However, the use of the product is not guaranteed by Buckman Laboratories, Inc., and no guarantee, expressed or implied, is made as to the effectiveness of the product if used in accordance with directions or established safe practice. The buyer must assume responsibility for any loss or damage, resulting from misuse of the product as such, or in combination with other products. This bulletin should not be taken as a license to operate under, or recommendation to infringe any patent.*

Printed in U.S.A.